



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
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JAN 04 2016

Mr. Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis
North Carolina Department of Transportation
1548 Mail Service Center
Raleigh, North Carolina 27699-1548

Re: Federal Draft Environmental Impact Statement (DEIS) and Draft §4(f) Evaluation for the Complete 540 [Triangle Expressway Southeast Extension] Project, Wake and Johnston Counties, North Carolina; ERP No.: FHW-E40852-NC; CEQ No.: 20150323; NC Department of Transportation (NCDOT) TIP Project Nos.: R-2721, R-2828, and R-2829

Dear Mr. Hancock:

The U.S. Environmental Protection Agency Region 4 Office has received and reviewed the subject document and is commenting in accordance with §309 of the Clean Air Act (CAA) and §102(2)(C) of the National Environmental Policy Act (NEPA). The NEPA process provides decision-makers the type and quality of information needed to make informed decisions about where and how to implement the subject project, or whether to proceed with the project at all. The Complete 540 Federal Draft Environmental Impact Statement (DEIS) proposes an approximately 27-mile, 4-lane divided, limited-access toll highway originating at NC 55 in Apex, North Carolina and connecting to US 64/US 264 Bypass (I-495) in Knightdale, North Carolina.

Although this project is not included in the NCDOT's NEPA/§404 Merger process, the EPA staff has been an active participant in the MAP-21 §6002 coordination plan for the proposed project, including purpose and need, detailed study alternatives to be carried forward and alignment review.

The Complete 540 DEIS represents a novel approach to creating a streamlined, reader-friendly document. The EPA welcomes innovative approaches to describe and discuss the proposed actions in a concise and straightforward manner. The primary function of a DEIS is to explain how decisions about the project were made and to convey the information that was used to inform those decisions. Numerous technical reports were cited and linked within the DEIS. However, the information from these reports such as the findings, conclusions, and/or recommendations, which are essential in conveying the basis for decision making, were not included. Thus, the EPA rated the DEIS as 'Environmental Concerns' (EC-2), indicating that our review identified environmental impacts within the project study area that should be avoided in order to fully protect the environment. The '2' rating indicates that the DEIS document does not

cc: John F. Sullivan, III, P.E., FHWA - NC
Eric Alsmeyer, USACE Raleigh Field Office
Gary Jordan, USFWS Raleigh Field Office
Rob Ridings, NCDOT, DWR
Travis Wilson, NCWRC

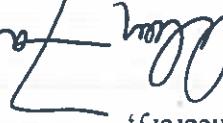
Enclosure

Resource Conservation and Restoration Division

Director

G. Alan Farmer

Sincerely,



Dr. Cynthia F. Van Der Wiele, of my staff, will continue to work with you as part of the NCDOT Interagency Team in the identification of reasonable and feasible alternatives. Should you have any questions concerning these comments, please feel free to contact her at: vanderwiele.cynthia@epa.gov or (919) 450-6811. We appreciate the opportunity to comment on the proposed Complete 540 project.

Specific technical review comments on the DEIS are enclosed to this letter (See enclosure). The EPA recommends that all of the technical comments in the enclosure be addressed in the Final EIS (FEIS). Additionally, we also recommend that all impacts to the human and natural environment that have not been disclosed in the DEIS or covered in the FEIS be addressed in additional NEPA documentation prior to the issuance of a Record of Decision (ROD).

Transportation facilities. Based on future scenarios, it may be appropriate to incorporate resilience measures to withstand more frequent and/or more intense storm events as well as the impact of temperature extremes on pavements and infrastructure.

Resouce Program, as a prediction of how climate change may impact this particular scenario from the National Climate Assessment (NCA), released by the U.S. Global Change Scenarios from the National Climate Assessment (NCA), released by the U.S. Global Change

Climatic change could have potential effects on transportation infrastructure. We recommend that the NCDOT, in concert with the Federal Highway Administration (FHWA), incorporate

allowing the EPA to be able to identify an environmentally-preferred alternative. Contain adequate information in order to sufficiently assess all of the environmental impacts and

ENCLOSURE

**Draft Environmental Impact Statement
Complete 540 (Triangle Expressway Southeast Extension) Project
Wake and Johnston County
ERP No.: FHW- E40852-NC; CEQ No.: 20150323**

Potential Impacts from the Proposed Project

The Complete 540 Project assesses 17 Detailed Study Alternatives (DSAs), consisting of 1000-foot corridors on new location—ranging from 25.2 to 32.0 miles in length. Residential relocations range from 234 (DSA 4) to 550 (DSA 9) and business relocations range from 8 (DSA 3 & 4) to 16 (DSAs 8 – 12). Agri-businesses impacted by the project range from none (DSAs 1, 5-7, 13, and 17) to 3 (DSAs 9 – 11), with losses in prime farmland soils ranging from 1,949 acres (DSA 7) to 2,332 acres (DSA 12). The Clean Water Act Section 404 impacts range from 51,582 (DSA 7) to 78,087 linear feet (DSA 10) of streams; 51.4 acres (DSA 7) to 75.6 acres (DSA 1) of wetlands; and 49.0 to 103.4 acres of 100-year floodplains. Cultural resource impacts include up to 2 National Register of Historic Places (NHRP)-listed sites with adverse effects (DSAs 6 and 7) and up to 27.2 acres of impacts to Department of Transportation Act of 1966 §4(f) public parks and recreation facilities. The impacts of this project on floodways, the 500-year floodplain, terrestrial forests, unique farmlands, soils/minerals, greenhouse gases and climate change, community cohesion, future local and regional land use plans, and on Environmental Justice (EJ) communities is unclear. See Comparative Evaluation Matrix on pages 107-109 of the Draft Environmental Impact Statement (DEIS).

Summary

The DEIS did not include an ‘Executive Summary’ section.

EPA Recommendation: An Executive Summary section is used to succinctly and accurately summarize the EIS including the purpose and need, major conclusions—particularly the environmental impacts of all alternatives (e.g., a table of impacts), areas of controversy, issues raised by agencies and the public, issues to be resolved, and the choice among alternatives and identification of a preferred alternative (CEQ reference 40 CFR §1502.12). It is recommended that an executive summary and table of all key natural and human resource impacts be included in the Final Environmental Impact Statement (FEIS).

Study Overview

Chapter 1 provided an overview and history of the proposed project, including a useful graphic of the project location, and an overview of National Environmental Policy Act (NEPA).

EPA Comment: The study overview chapter is useful for public outreach in explaining the project context.

Project Purpose and Need

Two primary purposes of the Complete 540 project were established: 1) improve mobility within or through the study area during peak travel periods, and 2) reduce [redacted] congestion on the existing roadway network within the project study area.

The needs for the proposed project include: 1) more route choices and 2) congestion on the existing roadway network.

The Capital Area Metropolitan Planning Organization (CAMPO) notes that the "Triangle is one of the nation's most sprawling regions...a key challenge is to match our vision for how our communities should grow with the transportation investments to support this growth" (p. 14 emphasized in red bold). The EPA supports the principles of sustainable community development.

EPA Comments: The transportation agencies might wish to consider the potential indirect cumulative effects from the various alternatives in the identification of a preferred alternative and the potential negative environmental consequences of sprawl.

This chapter aims to describe the information collected by the study team.

The Study Area and Its Features

EPA Recommendations: The DEIS chapter on the affected environment should consider describe the human and natural resources. This chapter should concentrate future planning and documentation effort and attention on important environmental issues, particularly the presence or absence of significant conclusions, and recommendations of the Community Impact Assessment (CIA, June 2015).

The Land Use and Population Characteristics section of the DEIS provides a substantial narrative on suburban development and limited information on community characteristics. The findings technical report were not included in the DEIS. The CIA and the DEIS both do not provide sufficient information pertaining to the existing land use and demographics. Of primary concern to the EPA regards not including the six (6) demographic indicators for identifying EJ than a high school education, and linguistically-isolated populations. A summary and/or graphic consumption of environmental resources, neighborhoods, or reference existing or future land use plans. The CIA report, however, substantiates the fact that while the project itself does not did not include a description, findings, or summary of the study area population's use and understand the demographic characteristics within the study area. Additionally, the DEIS also of EJ populations within the detailed study should be included in order to be able to fully than minorities (i.e., minority, low-income populations, over 65 years old, under 5 years old, less than a high school education, and linguistically-isolated populations), A summary and/or graphic to the DEIS regarding the six (6) demographic indicators for identifying EJ communities (i.e., minority, low-income populations, over 65 years old, under 5 years old, less than a high school education, and linguistically-isolated populations), A summary and/or graphic consumption of environmental resources, neighborhoods, or reference existing or future land use plans. The CIA report, however, substantiates the fact that while the project itself does not did not include a description, findings, or summary of the study area population's use and understand the demographic characteristics within the study area. Additionally, the DEIS also of EJ populations within the detailed study should be included in order to be able to fully than a high school education, and linguistically-isolated populations. A summary and/or graphic to the DEIS regarding the six (6) demographic indicators for identifying EJ communities (i.e., minority, low-income populations, over 65 years old, under 5 years old, less than a high school education, and linguistically-isolated populations), A summary and/or graphic

³ See: <http://www.epa.gov/clscreen/overview-demographic-indicators-clscreen>

communities#livability_Principles.

² See Guiding Principles, <http://www.cpa.gov/smartgrowth/hud-dot-epa-partnership-sustainable->

Tables listing park and recreation facilities, historic properties and districts, and other significant public or semi-public land uses/buildings located within the study area are a useful way of summarizing information in a succinct manner.

The Economic Characteristics section of the DEIS does not provide specificity with regards to median income levels within the study area (i.e., does not include percentages or figures but uses the terms “somewhat higher” or “smaller percentage” and does not identify specific block groups). Similarly, the Racial/Ethnic Percentages section does not provide sufficient information regarding census block groups or concentrations of communities of concern. It is unclear whether there are significant block groups of EJ communities of concern as there was no discussion of this in the chapter. As such, the USEPA is unable to make a determination at this time regarding which DSA would have the least impact to EJ communities. The USEPA suggests that the transportation agencies consider utilizing the ‘EJ Screening and Mapping’ tool at: <http://www.epa.gov/ejscreen> for the FEIS.

The project study area includes 445 jurisdictional streams and 543 jurisdictional wetlands. The DEIS Water Resources section did not include any tabular information summarizing stream or wetlands findings (e.g., NC Stream Assessment Method (NC SAM) and NC Wetland Assessment Method (NC WAM) ratings, water quality class, etc.), or other data regarding the quality and integrity of these systems. Some of this data, however, can be found in the *Waters Report* (September 2014). The USEPA recommends that detailed information on jurisdictional resources be included and presented in a comparative form based upon the DSAs in the FEIS.

The DEIS section on Protected Species describes several species that are located within central and/or eastern North Carolina. However, it was unclear as to whether or not there are species of concern present located within the project study area. The referenced *Natural Resources Technical Report* provides some additional detail. The USEPA requests that a summary of key protected species and the potential effects based upon the DSAs be included in the FEIS.

This chapter also lacked cross-cutting NEPA information regarding: floodplains (E.O. 11988; 10 CFR Part 1022); natural resources (e.g., timber, soils, minerals, fish, wildlife, etc.; Council on Environmental Quality regulations at 40 CFR §1508.8); prime/unique farmland (Farmland Protection Policy Act of 1981: 7 USC §4201); and migratory birds (Responsibilities of Federal Agencies to Protect Migratory Birds, E.O. 13186). The USEPA requests that the transportation agencies include this information in the FEIS and also make it available to resource and permitting agencies during the Interagency Coordination Team meetings.

Detailed Study Alternatives

The DEIS Selection of a Build Alternative was based on several key factors: logical termini/independent utility, roadway design criteria/typical sections, and study alternatives for each section. The range of build alternatives was reduced to seventeen (17) 1,000-foot wide DSA corridors which are comprised of various combinations of 10 discrete color-coded corridor segments. A substantial portion of the “Orange Corridor” segment was established through right-of-way acquisitions by the NCDOT as a protected corridor for the project in the mid-1990s, in order to protect it from large-scale development. This pre-NEPA action could be regarded as

- US EPA Recommendations:** Color maps of each of the 17 DSAs were included in the DEIS but did not provide the length (milege) of each alternative. A table of each DSA and how each one compares to the project's purpose and need would facilitate comparison of the alternatives (CEQ reference § 1502.14). Although the DEIS describes the color-coded segments, information on each DSA is not provided. Consequently, this makes it difficult for the USEPA to fully assess each alternative in a comparable fashion.
- US EPA Recommendations:** Color maps of each of the 17 DSAs were included in the DEIS but being pre-decided upon the information provided in the DEIS. The Orange Cortidor crosses a portion of the Swift Creek watershed that provides habitat for the federally-protected Dwarf wedgedmussel (*Alasmidonta heterodon*) and has more wetland impacts than the other corridors under consideration.
- US EPA Recommendations:** Colorful maps of the 17 DSAs that closely meet the Complete 540's purpose and need appear to most closely meet the Complete 540's. From the information provided, DSAs 6 and 7 appear to most closely meet the Complete 540's due to their proximity to other major highways within the existing network (thus, alleviating congestion on existing roadways). DSAs 6 and 7 would be the most viable, jumping on/off points, to the majority of commuters within the study area. The USEPA notes that these alternatives include the "Red Comidori" segment. NC General Assembly Session Laws 2013-94 and 2013-183 removed previous restrictions on considering this segment as reasonable and feasible alternatives that meet the Complete 540's Purpose and Need.
- Additionally, the USEPA also finds that DSAs 8 – 17 as being very problematic as these alternatives are the most distant from existing road networks and would be less able to meet the purpose and need, as stated (i.e., increase mobility and reduce congestion on the existing roadway network as a commuter would have to drive substantially further to access the Interstate 540 toll facility). Furthermore, DSAs 8 – 17 would have the most potential to induce low-density connectivity, § 404 jurisdictional streams and wetlands, threatened/endangered species, and/or overpasses to reduce large mammal mortality with vehicle collisions, and increase safety and reliability.
- Because all of the 17 DSAs for the Complete 540 project are entirely on new location the USEPA advises that wildlife "hotspot" areas be fully identified in the FEIS. Furthermore, the USEPA encourages additional collaboration with the NC Wildlife Resources Commission (NCWRC) and the U.S. Fish & Wildlife Service (USFWS) to design appropriate underpasses to describe the DSAs and the resulting direct and indirect impacts on the human and natural environment. The graphics provided facilitate understanding of relocation impacts and neighborhood effects.
- Expected Effects of Each Alternative**
- US EPA Recommendations:** The DEIS describes the process for determining the effects and discusses impacts in a general sense, but does not explicitly discuss direct or indirect impacts on:

- future land use and transportation planning
- commercial corridors and nodes
- police, fire, and emergency services (e.g. response times)
- relocations in terms of securing affordable housing; mobility, and access
- community effects (i.e., high benefit from project versus high burden)

With the exception of some EJ issues, most of the impacts of the Complete 540 project can be located within the technical reports provided on a compact disc (CD). The main findings, conclusions, and recommendations from these technical reports would be beneficial to include in the FEIS.

Cultural Resources and Public Facilities: The EPA encourages the transportation agencies to continue coordination efforts to avoid and minimize impacts to parks and recreational facilities and historic properties.

Noise: The EPA understands that a more detailed review of specific noise barrier locations will be performed during the final design process. The EPA encourages the transportation agencies to consider the design and implementation of evergreen roadside vegetation in locations that do not meet the threshold for noise barriers. The use of vegetative roadside screening ameliorates noise impact issues, visual quality impacts, as well as provides some potential beneficial effects for downwind vehicle emissions from near-roadway air pollutants.

Jurisdictional Resources: Impacts to floodways or the 500-year floodplain were not included in the DEIS. Floodways and floodplains are vital to reducing the likelihood of localized flooding during storm events, particularly as the study area continues to urbanize. The EPA environmentally prefers bridges to culverts at major hydraulic crossings. The EPA encourages engineering designs that incorporates resiliency strategies into the Complete 540 project to mitigate the likelihood of flooding in low-lying, flood-prone areas in addition to the identified FEMA 100-year floodplain. Such a design will ensure that the project's 'Purpose and Need' is met with regard to a robust, reliable transportation system as well as potentially mitigate for extreme weather events that are anticipated to increase as a result of climate change.

The EPA environmentally prefers DSAs 6 and 7 as the alternatives as having the least impacts to jurisdictional streams and wetlands based upon the information from the DEIS. DSAs 1 – 4 and 8 – 17 have the highest stream impacts while DSAs 1 – 5 and 15 - 17 have the highest wetland impacts. Further avoidance and minimization during final design should be considered in order to reduce impacts to aquatic resources. The EPA has environmental concerns about the potential impacts from some of the DSAs with respect to the Swift Creek Watershed critical area and streams and wetlands that have higher quality ratings using the NC SAM and the NC WAM methods, respectively.

Protected Species: The EPA encourages further collaboration with the USFWS and the NCWRC during final design to avoid and minimize impacts to threatened and endangered species. There is potential for adverse biological effects as a result of the proposed Complete 540 project.

Cimate Change Adaptation: The DEIS did not address climate change/greenhouse gas emissions. We recommend considering climate adaptation measures based on how future climate scenarios may impact the proposed project in the FEIS. The National Climate Assessment (NCA) contains scenarios for regions and sectors, including transportation. Using the NCA or other peer-reviewed climate scenarios to inform alternative maladaptations and possible changes to the proposed effect a proposed project as well as the project's ability to meet the designated purpose and need. For additional information, the transportation agencies may wish to refer to: https://www.whitehouse.gov/sites/default/files/docs/nepa_revised_draft_geographic_searchable_le.pdf

Several recent studies have examined the use of bridges and culverts as [day and night] bat roosting habitat⁴. The structural design of bridges and culverts with regard to the Northern long-eared bat (*Myotis septentrionalis*) might be considered during final design as a way to benefit and/or promote recovery of the species within the project study area.